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Remarks

Claims 1-31 are now pending in this application. Claims 1, 2, 6-12, 16-23, and 27-31 are rejected. Claims 3-5, 13-15, and 24-26 are objected to. Claims 1, 3, 5, 7, 9, 10, 12, 13, 16, 17, 21, 23, 24, 26, and 28 have been amended. No new matter has been added. A fee calculation sheet is submitted herewith for the independent Claims 3, 13, and 24.

The objection to the drawings is respectfully traversed. Applicants submit a replacement Figure 5 to improve the quality of Figure 5. No new matter has been added. Accordingly, Applicants respectfully request that the objection to the drawings be withdrawn.

The rejection of Claim 16 under 35 U.S.C §112, second paragraph, is respectfully traversed. Applicants respectfully request the Examiner to state how "the claim is incomplete for what it claimed for." However, to expedite the prosecution of this case, Applicants have amended Claim 16. Accordingly, Applicants respectfully request that the section 112 rejection to Claim 16 be withdrawn.

The rejection of Claim 1-2, 6-12, 16-23, and 27-31 under 35 U.S.C. § 102(e) as being anticipated by Ali et al. (U.S. Patent No. 6,198,181) is respectfully traversed.

Ali et al. describe a Monte-Carlo method (108) that is applied to generate many random values of x_1 , x_2 , and x_3 according to their measured probability density function (column 3, lines 65-68). For each generated random set of values x_1 , x_2 , and x_3 , a response surface (104) is used to compute a value of a critical-to-quality function (CTQ) (column 4, lines 1-2). Generating many random sets of values x_1 , x_2 , and x_3 (as prescribed by the Monte-Carlo method) enables computing the CTQ's mean and standard deviation which is used to compute a value of Z_{st} , provided by an equation, at a current optimization iteration (column 4, lines 3-7). An optimization package iterates again until the maximum possible value of Z_{st} is attained while satisfying all the constraints in the equation (column 4, lines 7-10).

Claim 1 recites a method to facilitate optimizing a winding and lamination configuration of an electric machine uses a computer including a microprocessor for executing computer functions, a database for storing optimization data, and a two-

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level optimization algorithm having a first optimization module and a second optimization module, the method comprises "generating a plurality of data sets utilizing the first optimization module; determining an optimum response surface based the data sets, utilizing the second optimization module, wherein said determining the optimum response surface includes applying one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied; determining an optimum data set based on the optimum response surface, utilizing the first optimization module; and outputting an optimum winding and lamination configuration based on the optimum data set."

Ali et al. do not describe or suggest a method to facilitate optimizing a winding and lamination configuration as recited in Claim 1. Specifically, Ali et al. do not describe or suggest determining an optimum response surface based the data sets, where determining the optimum response surface includes applying one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied. Rather, Ali et al. describe applying a Monte-Carlo method to generate many random values of x_1 , x_2 , and x_3 , using a response surface to compute a value of a critical-to-quality function's mean and standard deviation from many randomly generated sets of x_1 , x_2 , and x_3 , computing a value of Z_{st} from the value of the critical-to-quality function, and iterating until a maximum possible value of Z_{st} is attained. Accordingly, Ali et al. do not describe or suggest applying one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied. For the reasons set forth above, Claim 1 is submitted to be patentable over Ali et al.

Claims 2 and 6-9 depend, directly or indirectly, from independent Claim 1. When the recitations of Claims 2 and 6-9 are considered in combination with the recitations of Claim 1, Applicants submit that Claims 2 and 6-9 likewise is patentable over Ali et al.

Claim 10 recites a system to facilitate optimizing a winding and lamination configuration of an electric machine, the system comprising a computer, the computer

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comprising "a microprocessor for executing computer functions; a database coupled to said microprocessor for storing data; and a two-level optimization algorithm comprising a first optimization module and a second optimization module, said two-level optimization algorithm using data stored in said database and executed by said microprocessor, said first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied."

Ali et al. do not describe or suggest a system to facilitate optimizing a winding and lamination configuration as recited in Claim 10. Specifically, Ali et al. do not describe or suggest the first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied. Rather, Ali et al. describe applying a Monte-Carlo method to generate many random values of x_1 , x_2 , and x_3 , using a response surface to compute a value of a critical-to-quality function's mean and standard deviation from many randomly generated sets of x_1 , x_2 , and x_3 , computing a value of Z_{gr} from the value of the critical-to-quality function, and iterating until a maximum possible value of Z_{gr} is attained. Accordingly, Ali et al. do not describe or suggest the first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters as recited in Claim 10. For the reasons set forth above, Claim 10 is submitted to be patentable over Ali et al.

Claims 11, 12, and 16-20 depend, directly or indirectly, from independent Claim 10. When the recitations of Claims 11, 12, and 16-20 are considered in combination with the recitations of Claim 10, Applicants submit that Claims 11, 12, and 16-20 likewise is patentable over Ali et al.

Claim 21 recites a two-level optimization algorithm to facilitate optimizing a winding and lamination configuration of an electric machine comprising "a first optimization module; and a second optimization module; wherein said first optimization module configured to generate a first optimization solution based on output from said second optimization module and said second optimization configured to generate a second optimization solution based on output from said first

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optimization module, said two-level optimization algorithm configured to generate a global optimization solution based on the first and second optimization solutions, said first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied."

Ali et al. do not describe or suggest a two-level optimization algorithm as recited in Claim 21. Specifically, Ali et al. do not describe or suggest the first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters at a time different than a time at which the other of the lamination geometry variable data and the set of winding parameters is applied. Rather, Ali et al. describe applying a Monte-Carlo method to generate many random values of x_1 , x_2 , and x_3 , using a response surface to compute a value of a critical-to-quality function's mean and standard deviation from many randomly generated sets of x_1 , x_2 , and x_3 , computing a value of Z_{st} from the value of the critical-to-quality function, and iterating until a maximum possible value of Z_{st} is attained. Accordingly, Ali et al. do not describe or suggest the first optimization module configured to apply one of lamination geometry variable data and a set of winding parameters as recited in Claim 21. For the reasons set forth above, Claim 21 is submitted to be patentable over Ali et al.

Claims 22-23 and 27-31 depend, directly or indirectly, from independent Claim 21. When the recitations of Claims 22-23 and 27-31 are considered in combination with the recitations of Claim 21, Applicants submit that Claims 22-23 and 27-31 likewise is patentable over Ali et al.

For at least the reasons set forth above, Applicants respectfully request that the Section 102 rejection of Claims 1, 2, 6-12, 16-23, and 27-31 be withdrawn.

Claims 3-5, 13-15, and 24-26 have been indicated to contain allowable subject matter if rewritten to include all of the limitations of respective base claims and any respective intervening claims.

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Applicants have amended Claim 3 to include the limitations of Claims 1 and 2. Accordingly, Applicants respectfully submit that Claim 3 is in condition for allowance.

Claims 4 and 5 depend, directly or indirectly, from Claim 3, which is in condition for allowance. Accordingly, Applicants respectfully submit that Claims 4 and 5 are in condition for allowance.

Applicants have amended Claim 13 to include the limitations of Claims 10, 11, and 12. Accordingly, Applicants respectfully submit that Claim 13 is in condition for allowance.

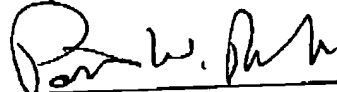
Claims 14 and 15 depend, directly or indirectly, from Claim 13, which is in condition for allowance. Accordingly, Applicants respectfully submit that Claims 14 and 15 are in condition for allowance.

Applicants have amended Claim 24 to include the limitations of Claims 21, 22, and 23. Accordingly, Applicants respectfully submit that Claim 24 is in condition for allowance.

Claims 25 and 26 depend, directly or indirectly, from Claim 24, which is in condition for allowance. Accordingly, Applicants respectfully submit that Claims 25 and 26 are in condition for allowance.

In view of the foregoing amendment and remarks, all the claims now active in this application are believed to be in condition for allowance. Reconsideration and favorable action is respectfully solicited.

Respectfully Submitted,



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